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Title:

The Fire Resistance Performance Of Four Specimens Of Wall Mounted And Four Specimens Of Floor Mounted Linear Gap Sealing Systems, When Tested In Accordance With AS 1530.4-2014, Section 10, Service Penetrations And Control Joints

Report No:

376610B



Prepared for:

Sika Services AG

Tueffenwies 16
8048 Zuerich
Switzerland

Date:

3rd August 2017

Notified Body No:

0833



Summary

Objective A fire resistance test has been conducted to assess the ability of four vertically orientated specimens and four horizontally orientated specimens of linear gap sealing systems, to reinstate the fire resistance of an autoclaved aerated concrete blockwork wall and a pre-cast, aerated concrete floor when tested in accordance with AS 1530.4-2014, Section 10, Service Penetrations And Control Joints

Sponsor Sika Services AG, Tueffenwies 16, 8048 Zuerich, Switzerland

Summary of the Tested Specimens For the purpose of the test the wall specimens were referenced A to d and the floor specimens were referenced I to L.

The section of wall had overall dimensions of 1500 mm high by 1500 mm wide by 150 mm thick and was made up of aerated blockwork arranged to provide four 1000 mm long linear gaps, between 12 mm to 40 mm in width.

The section of floor had overall dimensions of 2240 mm long by 1730 mm wide by 150 mm thick and was made up of autoclaved aerated concrete lintels arranged to provide to provide four 1000 mm long linear gaps, between 12 mm to 40 mm in width.

Specific details of each of the seals are given in the tables below:

Specimen	Wall specimen seal details
A	12 mm wide linear gap, sealed with a 6 mm depth of 'Sikaflex® - 400 Fire' Polyurethane sealant, cartridge gunned to finish flush on the unexposed face of the wall. The seal was backed with a 15 mm diameter closed cell polyethylene backing rod.
B	40 mm wide linear gap, sealed with a 20 mm depth of 'Sikaflex® - 400 Fire' Polyurethane sealant, cartridge gunned to finish flush on the unexposed face of the wall. The seal was backed with a 50 mm diameter closed cell polyethylene backing rod.
C	12 mm wide linear gap, sealed with a 6 mm depth of 'Sikaflex® - 400 Fire' Polyurethane sealant, cartridge gunned to finish flush on both faces of the wall. The seals were backed with 15 mm diameter closed cell polyethylene backing rod.
D	40 mm wide linear gap, sealed with a 20 mm depth of 'Sikaflex® - 400 Fire' Polyurethane sealant, cartridge gunned to finish flush on both faces of the wall. The seals were backed with 50 mm diameter closed cell polyethylene backing rod.

Specimen	Floor specimen seal details
I	40 mm wide linear gap, sealed with a 32 mm depth of 'Sikaflex® - 400 Fire' Polyurethane sealant, cartridge gunned to finish flush on both faces of the floor. The seal was backed with a 50 mm diameter closed cell polyethylene backing rod.
J	12 mm wide linear gap, sealed with a 9.6 mm depth of 'Sikaflex® - 400 Fire' Polyurethane sealant, cartridge gunned to finish flush on both faces of the floor. The seals were backed with 15 mm diameter closed cell polyethylene backing rod.
K	40 mm wide linear gap, sealed with a 32 mm depth of 'Sikaflex® - 400 Fire' Polyurethane sealant, cartridge gunned to finish flush on the unexposed face of the floor. The seals were backed with 50 mm diameter closed cell polyethylene backing rod .
L	12 mm wide linear gap, sealed with a 9.6 mm depth of 'Sikaflex® - 400 Fire' Polyurethane sealant, cartridge gunned to finish flush on the unexposed face of the floor. The seal was backed with a 15 mm diameter closed cell polyethylene backing rod.

Full details of the specimens and installation methods are given in the Schedule of Components.

Test Results

Specimen	Integrity (mins)		Insulation (mins)
	Cotton Pad	Sustained flaming	
A	242	242#	133
B	128#	128	125
C	264*	264*	264*
D	192#	192	149
I	264*	264*	251
J	264*	264*	242
K	167	167	122
L	182	182#	131

* The test duration. The test was discontinued after a period of 264 minutes.

#Specimen blanked off to allow the test to continue.

Date of Test

26th November 2016

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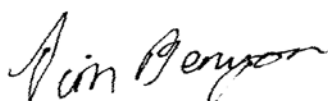
Signatories



Responsible Officer

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Testing Officer



Approved

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Certification Engineer



Head of Department

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Operations Manager

* For and on behalf of **Exova Warringtonfire**.

Report Issued

Date : 3rd August 2017

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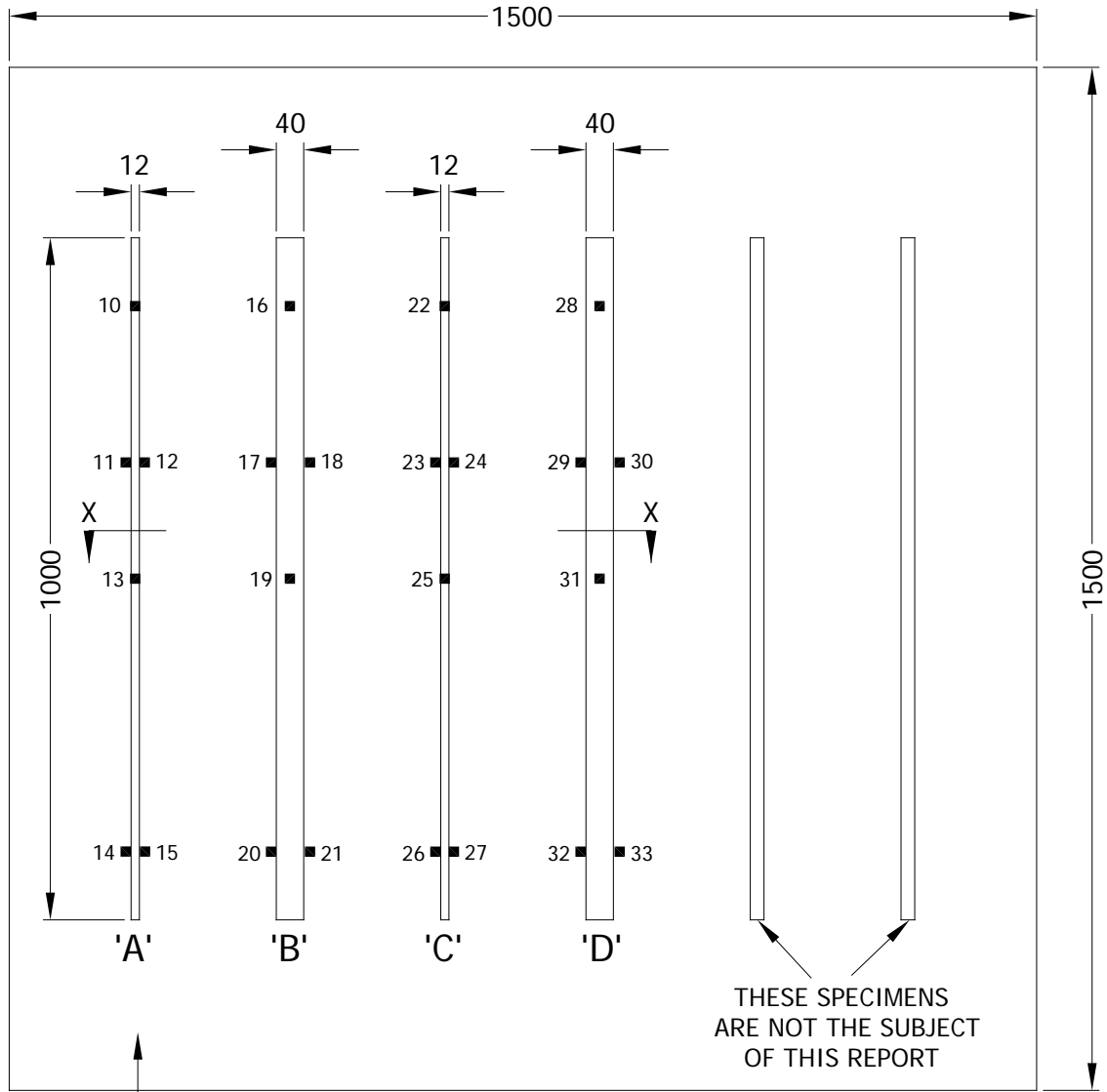
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Test Procedure

Introduction	<p>Walls and floors often incorporate gaps to accommodate a specific degree of movement within the linear joint. The fire resistance of such elements is only as good as their weakest point and it is, therefore, important that any gaps or apertures are adequately sealed, such that weaknesses are not created at these positions.</p> <p>The specimens were judged on their ability to comply with the performance criteria for integrity and insulation, as required by AS 1530.4-2014, Section 2, General Requirements.</p>
Fire Test Study Group/EGOLF	<p>Certain aspects of some fire test specifications are open to different interpretations. The Fire Test Study Group and EGOLF have identified a number of such areas and have agreed Resolutions which define common agreement of interpretations between fire test laboratories which are members of the Groups. Where such Resolutions are applicable to this test they have been followed.</p>
Instruction To Test	<p>The test was conducted on the 22nd November 2016 at the request of Sika Services AG, the sponsor of the test.</p> <p>Mr. C. Voellm, a representative of the test sponsor witnessed the test.</p>
Test Specimen Construction	<p>A comprehensive description of the test constructions is given in the Schedule of Components. The description is based on a detailed survey of the specimens and information supplied by the sponsor of the test.</p>
Installation	<p>Exova Warringtonfire supplied the wall and floor constructions. The gap sealing systems were provided and installed by a representative of the test sponsor on the 26th October 2016</p>
Sampling	<p>A representative of Warrington Certification selected and sampled the 'Sikaflex® - 400 Fire' sealant on the --/--/--</p>
Conditioning	<p>The specimens' storage, construction, and test preparation took place in the test laboratory over a total, combined time of 32 days. Throughout this period of time both the temperature and the humidity of the laboratory were measured and recorded as being within a range of from 13.5°C to 29°C and 51.5% to 88% respectively.</p>

Test Specimen

Figure 1- General elevation of wall specimens and unexposed face thermocouples



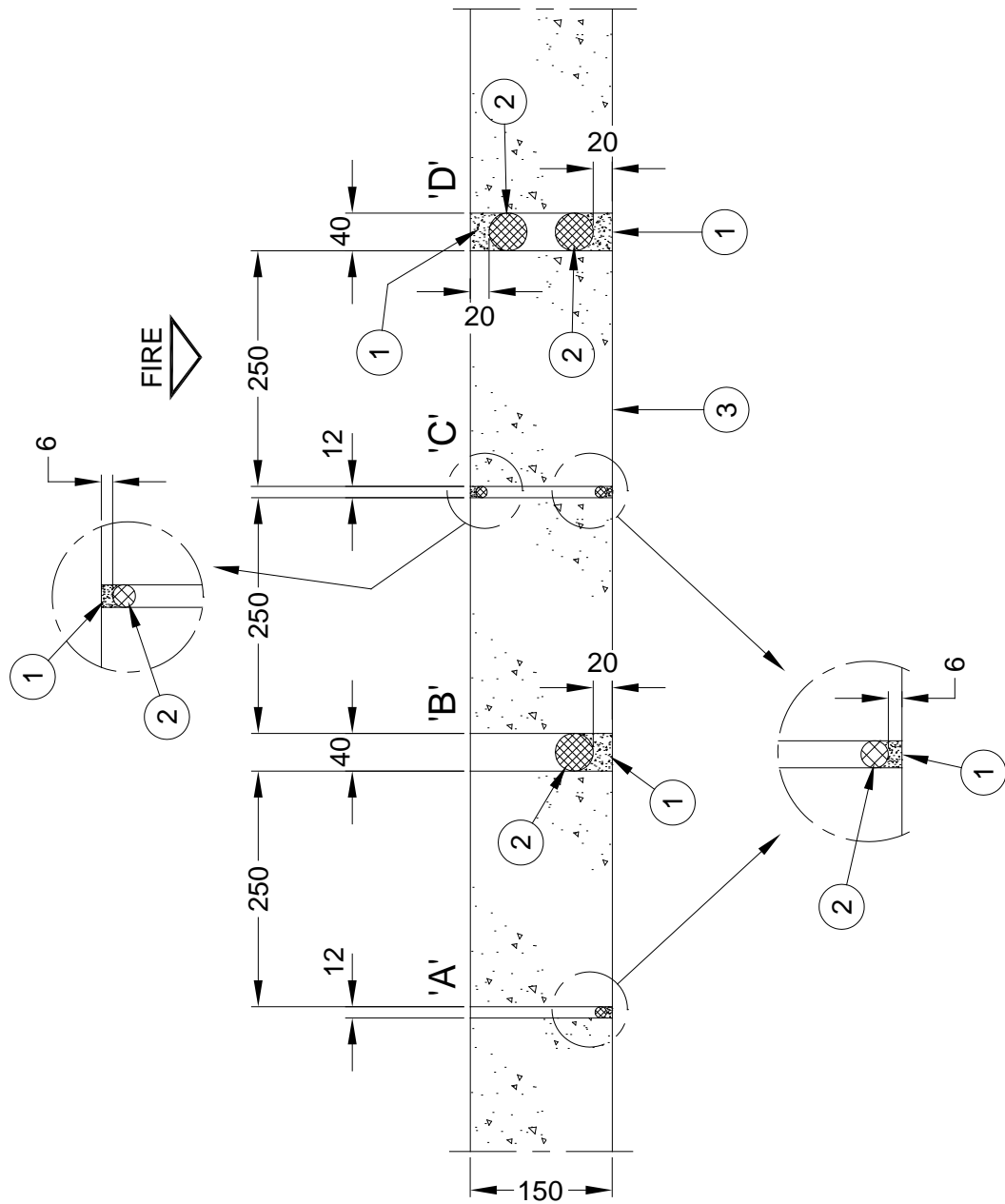
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GENERAL ELEVATION OF UNEXPOSED FACE OF WALL SPECIMENS 'A' TO 'D'

■ Positions of thermocouples

Do not scale. All dimensions are in mm

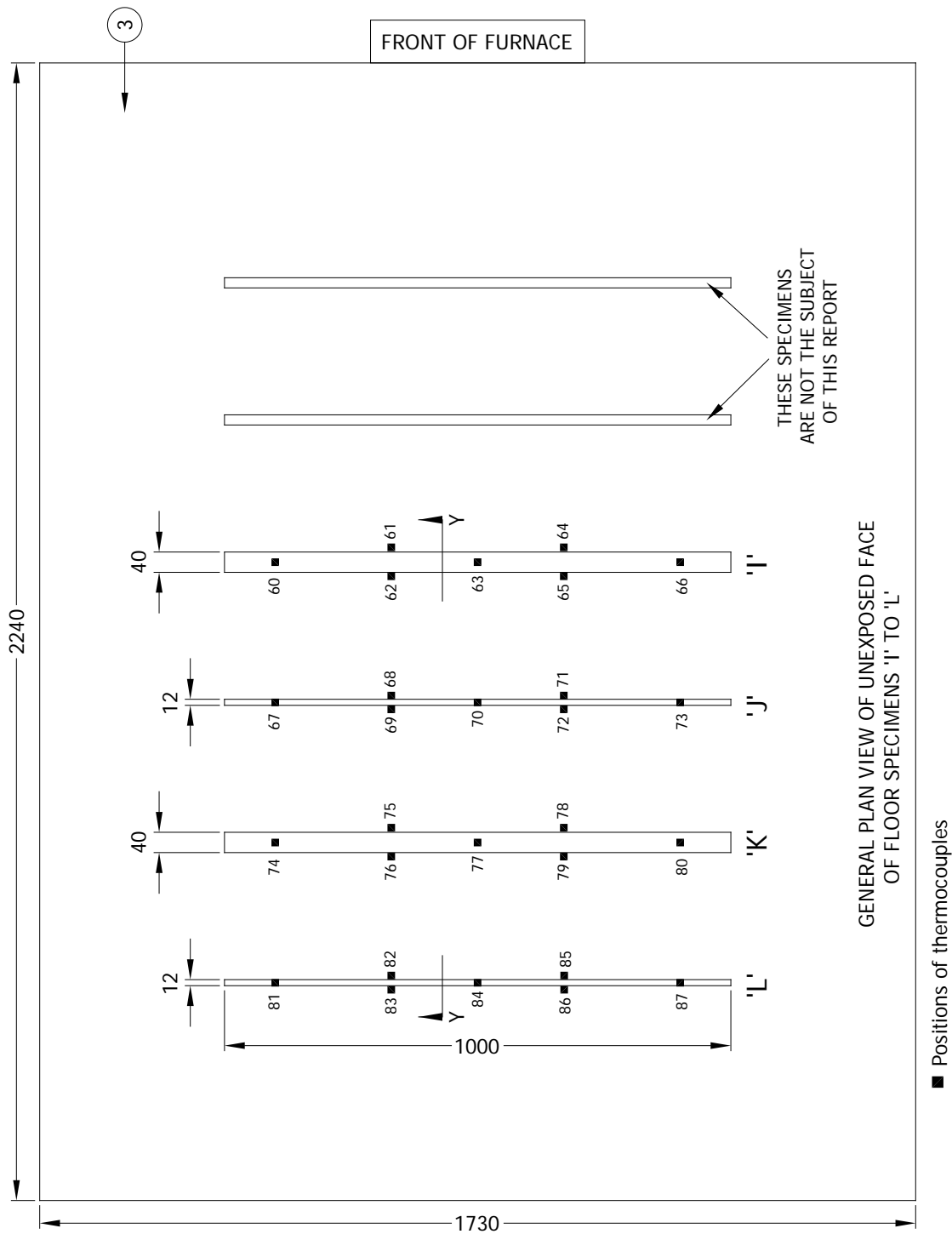
Figure 2 – Details of wall specimens



SECTION X-X THROUGH WALL SPECIMENS 'A' TO 'D'

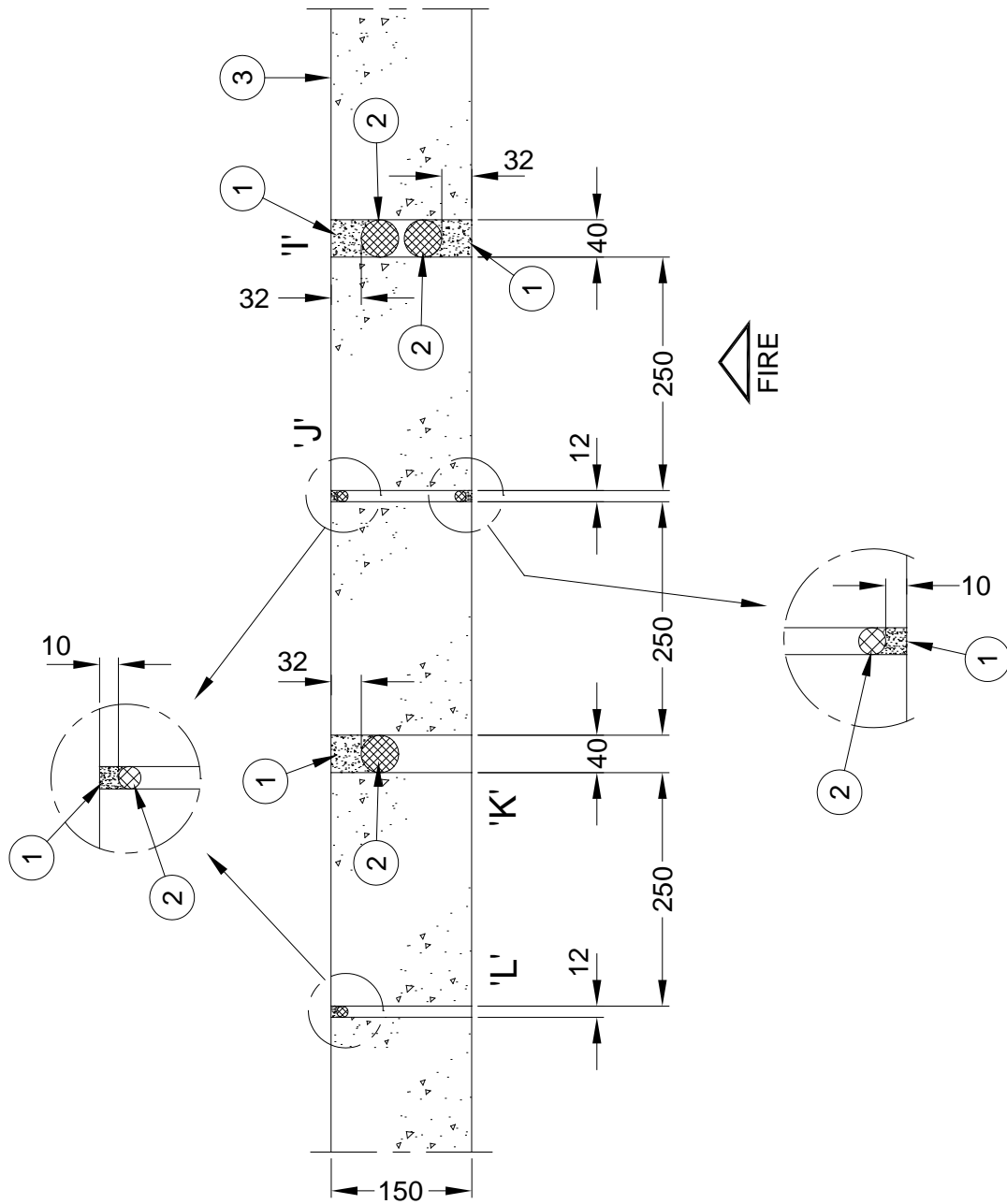
Do not scale. All dimensions are in mm

Figure 3 – General plan of floor specimens and unexposed face thermocouples



Do not scale. All dimensions are in mm

Figure 4 – Details of floor specimens



SECTION Y-Y THROUGH FLOOR SPECIMENS 'I' TO 'L'

Do not scale. All dimensions are in mm

Schedule of Components

(Refer to Figures 1 to 4)

(All values are nominal unless stated otherwise)

(All other details are as stated by the sponsor)

Item	Description
1. Cavity sealant	
Manufacturer	: Sika (Factory No.3001)
Reference	: Sikaflex® - 400 Fire
Material	: Polyurethane sealant
Batch number	: 1000018700
Section size of sealant for wall specimens (width x depth)	
i. specimen 'A'	: 12 mm x 6 mm, finished flush at unexposed face of wall
ii. specimen 'B'	: 40 mm x 20 mm, finished flush at unexposed face
iii. specimen 'C'	: 12 mm x 6 mm, finished flush at both faces of wall
iv. specimen 'D'	: 40 mm x 20 mm, finished flush at both faces of wall
Section size of sealant for floor specimens (width x depth)	
i. specimen 'I'	: 40 mm x 32 mm, finished flush at both faces of floor
ii. specimen 'J'	: 12 mm x 10 mm, finished flush at both faces of floor
iii. specimen 'K'	: 40 mm x 32 mm, finished flush at unexposed face
iv. specimen 'L'	: 12 mm x 10 mm, finished flush at unexposed face
Application method	: Cartridge gunned
2. Backing rod to cavity sealant	
Material	: Closed cell Polyethylene backing rod
Supplied size of rod	:
i. specimen 'A', 'C', 'J' & 'L'	: 15 mm diameter
ii. specimen 'B', 'D', 'I' & 'K'	: 50 mm diameter
3. Cavity facing	
Type	: Autoclaved aerated concrete slabs (supplied by Exova Warringtonfire)
Thickness	: 150 mm
Density	: 670 kg/m ³

Instrumentation

General	The instrumentation was provided in accordance with the requirements of AS 1530.4-2014, Section 2, General Requirements.
Furnace	The furnace was controlled so that its mean temperature complied with the requirements of AS 1530.4-2014, Annex B9.2 using three mineral insulated, Type K thermocouples, distributed over a plane 100 mm from the surface of the vertical test construction and three thermocouples, distributed over a plane 100 mm from the surface of the horizontal test construction.
Thermocouple Allocation	<p>Thermocouples were provided to monitor the unexposed surface of the specimens and the output of all instrumentation was recorded at no less than one minute intervals as follows:</p> <p>The locations and reference numbers of the various unexposed surface thermocouples are shown in Figures 1 and 2.</p>
Roving Thermocouple	A roving thermocouple was available to measure temperatures on the unexposed surface of the specimens at any position, which might appear to be hotter than the temperatures indicated by the fixed thermocouples.
Integrity Criteria	Cotton pads were available to evaluate the integrity of the specimens.
Furnace Pressure	After the first five minutes of testing, the furnace pressure was controlled to maintain a slightly positive pressure relative to the pressure of the laboratory. The furnace atmospheric pressure was measured and controlled such that, at a point at mid height of the specimens in the wall assembly, the differential pressure was calculated to be 15 (± 2) Pa. and at a position 100 mm below the underside of the floor assembly was calculated to be 20 (± 2) Pa.

Test Observations

Time		All observations are from the unexposed face unless noted otherwise.
mins	secs	The ambient air temperature in the vicinity of the test construction was 11°C at the start of the test with a maximum variation of +1°C during the test.
00	00	The test commences.
03	00	Smoke release from Specimen L.
10	00	Smoke release from Specimen L has increased as the PE backer rod melts.
13	10	Glowing at the head of Specimen.
19	10	Large increase in smoke release from Specimen L.
30	00	The seal in Specimen B is softening in the middle of the seal in the upper half. The sealant in Specimen J is beginning to expand in the middle of the seal.
45	00	No significant visible changes to the Specimens
50	00	The sealant within Specimen B is softening in the top half of the seal.
80	00	The seal of L has degraded further and glowing is visible along the full length of the seal.
86	00	A cotton wool pad is placed along the seal of Specimen L—no failure.
88	00	The sealant in specimen B is softening further which has caused thermocouple 16 to come away from the Specimen and has taken some of the sealant with it.
92	00	The seal of Specimen J is expanding further and small splits are visible within the seal.
100	00	Thermocouples 19 and 16 are reattached to Specimen B .
115	00	The seal in Specimen B is darkening in the upper half of the specimen.
118	00	Glowing is visible in the top of the seal in Specimen B, The glowing is all around the seal and the sealant is beginning to break within the aperture.
122	00	The seal in Specimen J is darkening near thermocouple 76.
128	00	Sustained flaming failure of B is deemed to have occurred as flames emit from the glowing in the top of the seal.
130	00	The seal is blackening in Specimens K, J and I.
131	00	There is glowing visible along the edge of Specimen L
132	00	Seal in Specimen K has dropped along the middle of the seal.

Time

mins secs

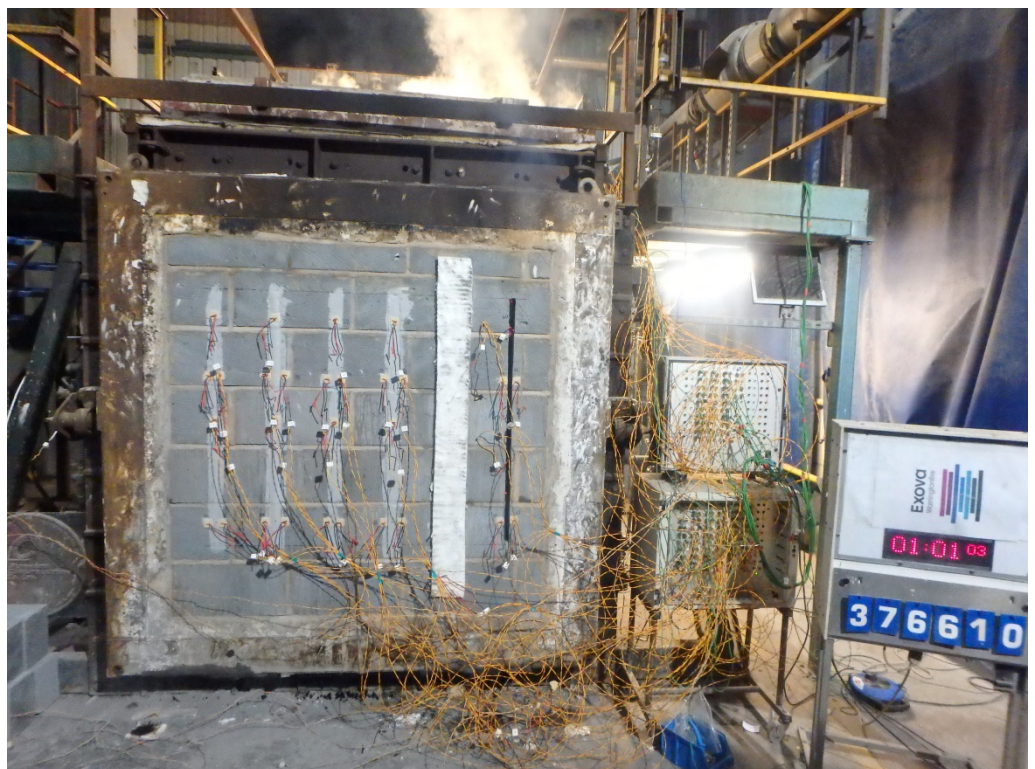
136	00	A cotton wool pad is applied to Specimen L at the mentioned glowing area - no failure.
137	00	Seal in Specimen L is darkening further along the seal.
150	00	Seal in Specimens L and K is darkening further.
153	00	Glowing in visible within the seal of Specimen K. Cotton wool pad applied – no failure.
165	00	Glowing in seals K and L along concrete have increased in length and intensity. The seal has blackened further due to the temperature rise.
166	00	Blackening of the seal is visible in Specimen D and the staining of seal A has increased.
167	00	Sustained flaming failure of K is deemed to have occurred as flames emit from the glowing within the seal
176	00	Glowing in Specimen D near thermocouple 28.
182	00	Cotton wool pad failure of L is deemed to have occurred as a cotton pad ignites over the position of the glowing within the seal
186	00	Specimen K is blanked off
190	00	Cotton wool pad applied to glowing in Specimen D – no failure.
192	00	Cotton wool pad failure of D is deemed to have occurred as a cotton pad ignites over the position of the glowing within the seal
240	00	Glowing and cracking of A has increased.
242	00	Cotton wool pad failure of A is deemed to have occurred as a cotton pad ignites over the position of the glowing within the seal
264	00	Test discontinued

Test Photographs

The exposed face of the wall construction prior to testing



The unexposed face of the wall assembly after a test duration of 61 minutes



The unexposed
face of floor
assembly after a
test duration of 61
minutes



The unexposed
face of the wall
assembly after a
test duration of
120 minutes



The unexposed face of the floor assembly after a test duration of 120 minutes



The unexposed face of the wall assembly after a test duration of 240 minutes



The exposed face of the floor assembly after a test duration of 240 minutes



The unexposed face of the wall assembly after a test duration of 262 minutes



The unexposed face of the floor construction after a test duration of 262 minutes



The exposed face of the wall assembly immediately after the test



Temperature Data

Mean Furnace Temperature, Together With The Temperature/Time Relationship Specified In
AS 1530.4-2014

Time Mins	Specified Furnace Temperature Deg. C	Actual Furnace Temperature Deg. C
0	20	17
10	678	678
20	781	777
30	842	836
40	885	875
50	918	908
60	945	935
70	968	961
80	988	984
90	1006	1005
100	1022	1022
110	1036	1038
120	1049	1054
130	1061	1066
140	1072	1079
150	1082	1090
160	1092	1101
170	1101	1111
180	1110	1121
190	1118	1131
200	1126	1139
210	1133	1147
220	1140	1154
230	1146	1136
240	1153	1158
250	1159	1165
260	1165	1173
264	1167	1171

**Individual Temperatures Recorded On The Unexposed Surface Of Specimen A
And Adjacent To Specimen A**

Time Mins	T/C Number 10 Deg. C	T/C Number 11 Deg. C	T/C Number 12 Deg. C	T/C Number 13 Deg. C	T/C Number 14 Deg. C	T/C Number 15 Deg. C
0	13	11	11	9	11	11
10	16	15	14	3	12	13
20	27	28	26	38	17	18
30	45	44	43	62	23	25
40	64	59	60	79	31	33
50	77	70	72	90	38	44
60	85	80	79	98	46	55
70	89	86	85	105	54	67
80	93	91	89	113	63	77
90	97	94	92	123	70	83
100	100	96	95	137	77	86
110	105	99	97	152	82	89
120	112	103	100	167	85	92
130	119	111	107	181	87	93
133	122	115	110	187	89	93
134	123	116	111	190	89	93
140	129	123	119	204	90	94
150	141	135	132	223	92	95
160	151	147	145	240	93	96
170	163	163	159	255	95	98
180	174	180	175	284	96	101
190	192	195	192	320	98	105
200	206	213	210	390	98	113
210	217	230	225	466	102	123
220	228	250	240	521	111	136
230	241	272	264	591	122	152
240	253	305	296	666	136	171
250	275	340	331	709	151	195
260	300	373	363	728	167	226
264	318	383	373	734	175	238

Individual Temperatures Recorded On The Unexposed Surface Of Specimen B And Adjacent To Specimen B

Time	T/C	T/C	T/C	T/C	T/C	T/C
Mins	Number	Number	Number	Number	Number	Number
	16	17	18	19	20	21
	Deg. C	Deg. C	Deg. C	Deg. C	Deg. C	Deg. C
0	12	12	12	12	11	11
10	27	15	16	19	13	14
20	56	33	33	41	25	23
30	78	58	62	62	49	42
40	91	76	79	78	71	63
50	102	84	84	89	82	77
60	116	89	86	99	87	84
70	137	92	88	110	90	87
80	155	93	91	124	91	90
90	122	95	93	141	92	92
100	16	95	96	71	93	93
110	155	97	98	127	94	94
120	*	103	120	179	98	96
125	*	110	141	191	102	97
126	*	111	143	193	103	97
130	#	#	#	#	#	#

*Thermocouple malfunction
#Specimen blanked off to allow the test to continue

**Individual Temperatures Recorded On The Unexposed Surface Of Specimen C
And Adjacent To Specimen C**

Time	T/C	T/C	T/C	T/C	T/C	T/C
Mins	Number	Number	Number	Number	Number	Number
	22	23	24	25	26	27
	Deg. C	Deg. C	Deg. C	Deg. C	Deg. C	Deg. C
0	12	12	12	12	11	12
10	14	14	14	14	14	15
20	17	16	16	16	18	18
30	25	17	19	18	17	18
40	32	22	25	25	19	20
50	40	28	32	34	22	25
60	50	36	43	46	29	36
70	63	46	55	60	39	50
80	74	55	65	72	51	63
90	78	62	71	78	60	70
100	81	66	74	81	67	75
110	84	70	76	83	73	78
120	90	73	79	84	75	80
130	93	76	81	86	77	81
140	96	78	84	87	78	82
150	99	80	86	89	79	83
160	102	83	89	91	79	83
170	107	85	90	94	80	84
180	113	86	91	96	80	85
190	118	87	92	99	81	85
200	125	90	92	104	82	86
210	130	90	93	111	84	87
220	137	91	94	120	85	89
230	144	91	95	131	87	90
240	155	93	96	142	88	91
250	164	94	97	153	89	92
260	173	95	99	164	90	93
264	177	95	99	168	91	93

**Individual Temperatures Recorded On The Unexposed Surface Of Specimen D
And Adjacent To Specimen D**

Time Mins	T/C Number 28 Deg. C	T/C Number 29 Deg. C	T/C Number 30 Deg. C	T/C Number 31 Deg. C	T/C Number 32 Deg. C	T/C Number 33 Deg. C
0	12	12	11	12	14	20
10	14	16	13	15	20	26
20	15	17	15	17	22	29
30	15	15	15	15	21	27
40	22	17	27	18	20	27
50	45	27	74	33	20	27
60	62	46	84	49	22	29
70	73	66	86	62	25	33
80	82	79	87	72	30	40
90	90	85	87	79	37	47
100	98	88	89	84	45	54
110	106	90	94	90	53	61
120	117	92	99	99	59	67
130	128	93	129	107	64	72
140	142	94	164	118	70	78
149	*	96	191	131	76	83
150		96	194	133	76	84
160	128	97	221	142	81	87
170	133	100	246	49	83	90
180	272	107	272	169	86	92
190	444	121	301	199	88	95
191	470	123	306	201	89	95
192	486	124	309	203	89	95
193	#	#	#	#	#	#

*Thermocouple malfunction
#Specimen blanked off to allow the test to continue

**Individual Temperatures Recorded On The Unexposed Surface Of Specimen I
And Adjacent To Specimen I**

Time	T/C	T/C	T/C	T/C	T/C	T/C	T/C
Mins	Number	Number	Number	Number	Number	Number	Number
	60	61	62	63	64	65	66
	Deg. C	Deg. C	Deg. C	Deg. C	Deg. C	Deg. C	Deg. C
0	15	15	15	15	15	15	15
10	15	14	15	15	15	15	15
20	14	14	15	15	15	15	15
30	14	15	15	15	15	15	15
40	14	15	15	15	15	15	15
50	14	15	15	15	16	15	15
60	16	17	17	17	18	17	16
70	21	24	24	23	24	24	18
80	29	38	37	32	36	37	24
90	36	53	53	40	52	53	34
100	44	64	66	48	63	66	45
110	50	72	73	55	70	74	55
120	52	75	76	58	73	78	61
130	55	77	79	62	75	81	66
140	59	80	81	65	77	83	71
150	62	80	82	70	79	85	74
160	65	84	83	73	82	89	79
170	77	86	85	80	85	90	84
180	83	89	87	85	88	93	90
190	88	92	89	93	92	93	98
200	92	94	91	103	93	96	108
210	103	95	94	118	98	94	121
220	111	104	100	139	110	101	138
230	139	123	114	157	134	116	155
240	146	138	129	171	149	139	180
250	92	154	143	192	163	161	198
251	93	155	145	193	165	163	201
252	93	158	147	196	165	164	199
260	101	172	161	214	179	178	183
264	107	178	167	222	184	184	202

**Individual Temperatures Recorded On The Unexposed Surface Of Specimen J
And Adjacent To Specimen J**

Time	T/C Number	T/C Number	T/C Number	T/C Number	T/C Number	T/C Number	T/C Number
Mins	67 Deg. C	68 Deg. C	69 Deg. C	70 Deg. C	71 Deg. C	72 Deg. C	73 Deg. C
0	15	15	15	14	15	15	12
10	14	15	15	14	14	14	12
20	15	15	15	14	15	14	14
30	18	17	17	16	16	16	14
40	23	21	22	20	18	18	23
50	33	28	30	27	22	24	29
60	46	36	40	35	30	33	39
70	58	45	50	45	39	44	52
80	67	53	60	54	49	55	61
90	71	60	70	60	56	64	68
100	74	64	75	65	61	71	74
110	77	68	79	69	66	76	79
120	79	70	80	69	69	77	80
130	81	72	81	72	71	79	82
140	84	73	82	74	73	80	85
150	87	74	84	76	75	81	88
160	90	76	85	80	76	83	93
170	94	78	87	82	78	84	98
180	98	80	88	85	79	84	102
190	103	82	89	89	80	85	108
200	109	84	90	88	82	86	56
210	116	87	91	88	84	88	120
220	123	91	95	94	87	90	130
230	132	95	98	101	90	93	165
240	140	102	105	119	94	97	90
242	142	104	108	121	95	98	177
243	144	106	110	127	96	98	207
244	146	108	111	131	97	99	218
245	147	109	112	131	98	99	220
250	153	118	119	140	102	104	204
260	225	136	136	112	120	122	261
261	231	137	137	106	122	125	294
262	235	139	139	104	124	127	323
263	239	141	142	105	126	130	308
264	235	142	143	101	127	132	286

**Individual Temperatures Recorded On The Unexposed Surface Of Specimen K
And Adjacent To Specimen K**

Time	T/C	T/C	T/C	T/C	T/C	T/C	T/C
Mins	Number	Number	Number	Number	Number	Number	Number
	74	75	76	77	78	79	80
	Deg. C	Deg. C	Deg. C	Deg. C	Deg. C	Deg. C	Deg. C
0	15	14	14	15	14	15	15
10	17	15	15	16	15	15	16
20	30	23	26	25	24	26	26
30	45	37	44	37	37	43	38
40	58	50	58	49	49	59	50
50	68	70	68	62	75	75	59
60	75	86	78	75	89	83	68
70	83	94	85	86	96	87	75
80	91	99	88	98	99	90	81
90	100	106	91	108	119	92	87
100	106	143	93	125	145	97	95
110	121	167	98	145	165	112	105
120	141	191	114	166	186	130	112
122	144	194	121	169	190	133	114
123	145	196	124	170	191	134	116
130	159	210	141	183	205	147	124
140	125	228	159	199	224	163	138
150	144	245	175	230	244	179	152
160	208	260	191	246	260	192	165
168	342	276	205	256	276	204	176
169	#	#	#	#	#	#	#

#Specimen blanked off to allow the test to continue

**Individual Temperatures Recorded On The Unexposed Surface Of Specimen L
And Adjacent To Specimen L**

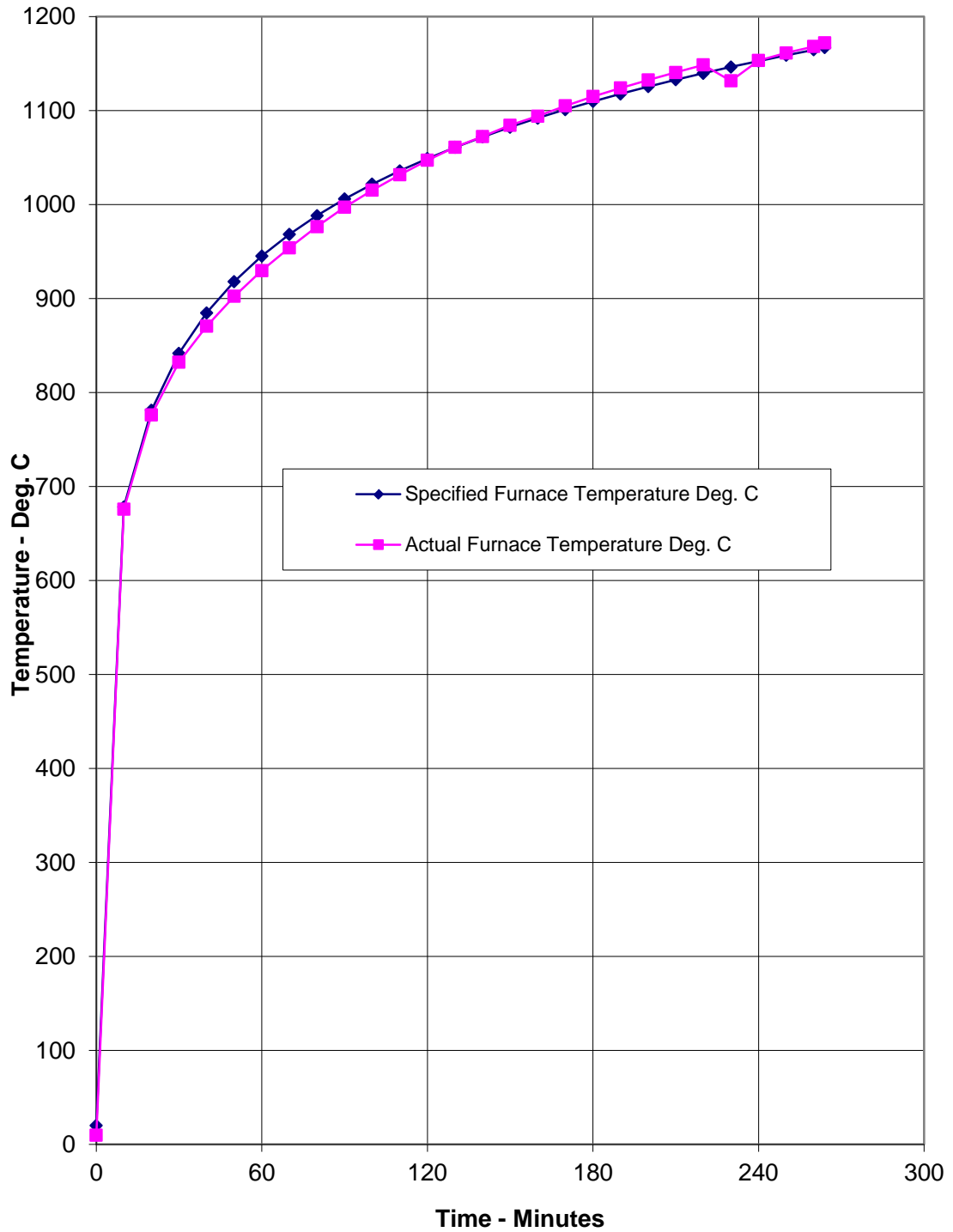
Time	T/C	T/C	T/C	T/C	T/C	T/C	T/C
Mins	Number	Number	Number	Number	Number	Number	Number
	81	82	83	84	85	86	87
	Deg. C	Deg. C	Deg. C	Deg. C	Deg. C	Deg. C	Deg. C
0	14	14	14	14	14	14	14
10	26	20	19	23	20	19	26
20	48	35	33	47	37	36	48
30	67	49	49	70	53	54	65
40	75	59	61	81	64	70	76
50	84	67	71	90	74	79	84
60	92	73	78	99	82	85	91
70	100	78	83	109	90	90	99
80	111	83	88	123	97	93	108
90	124	87	90	136	108	95	120
100	137	91	93	146	122	100	133
110	145	95	94	159	137	113	145
120	151	103	97	174	151	127	156
130	161	114	100	193	169	140	168
131	162	114	100	194	171	140	158
132	163	116	100	198	174	142	151
140	171	125	105	224	198	155	222
150	169	138	112	248	225	172	462
160	169	151	121	285	273	192	612
170	209	166	133	364	399	237	672
180	226	179	148	439	395	269	591
182	#	#	#	#	#	#	#

#Specimen blanked off to allow the test to continue

Table Showing Recorded Furnace Pressure at the head of the wall Specimens

Time Mins	Recorded Pressure Pascals
0	0
10	16
20	25
30	25
40	24
50	23
60	24
70	24
80	24
90	25
100	24
110	22
120	23
130	25
140	25
150	24
160	24
170	24
180	23
190	23
200	22
210	24
220	23
230	27
240	24
250	24
260	23
264	23

Graph Showing Mean Furnace Temperature, Together With The Temperature/Time Relationship Specified In AS 1530.4-2014



Performance Criteria and Test Results

Integrity

It is required that the specimen retains its separating function, without either causing ignition of a cotton pad when applied as specified in AS 1530.4-2014, or resulting in sustained flaming on the unexposed surface. **These requirements were satisfied for the periods shown below:**

Specimens	Integrity (mins)	
	Cotton Pad	Sustained flaming
A	242	242#
B	128#	128
C	264*	264*
D	192#	192
I	264*	264*
J	264*	264*
K	167	167
L	182	182#

Insulation

The requirements of the standard are that the maximum temperature rise shall not be greater than 180 K. Insulation failure also occurs simultaneously with integrity failure as specified in AS 1530.4-2014. **These requirements were satisfied for the periods shown below:**

Specimen	Insulation (minutes)
A	133
B	125
C	264*
D	149
I	251
J	242
K	122
L	131

* The test duration. The test was discontinued after a period of 264 minutes.

Ongoing Implications

Limitations

The results relate only to the behaviour of the specimens of the element of construction under the particular conditions of test. They are not intended to be the sole criteria for assessing the potential fire performance of the element in use, nor do they reflect the actual behaviour in fires.

The results may not be applicable to situations where the joint widths, sealant depths, orientations, supporting construction and backing material vary from those tested.

Conclusions

Evaluation against objective

A fire resistance test has been conducted to assess the ability of four wall mounted and four floor mounted specimens of linear joint sealing systems, to reinstate the integrity and insulation performance (as defined in AS 1530.4-2014) of a simulated wall and floor construction, where adjacent structures abut.

Test Results

Specimen	Integrity (mins)		Insulation (mins)
	Cotton Pad	Sustained flaming	
A	242	242#	133
B	128#	128	125
C	264*	264*	264*
D	192#	192	149
I	264*	264*	251
J	264*	264*	242
K	167	167	122
L	182	182#	131

* The test duration. The test was discontinued after a period of 264 minutes.
#Specimen blanked off to allow the test to continue